DOCUMENT RESUME

ED 214 764 SE 036 450

AUTHOR Christian, Adelaide
TITLE "Back to the Basics" Through Environmental Education.
PUB DATE 81
NOTE 25p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Basic Skills; *Educational Innovation; Elementary Secondary Education; *Environmental Education; Interdisciplinary Approach; Physical Environment; Problem Solving; Social Environment; Teaching Methods; *Technology

ABSTRACT

Environmental education is proposed as a viable means of improving the educational system. The rationale for teaching environmental education is based in part upon White's principles of education for Seventh-day Adventists and upon Noel McInnis's views of what makes education environmental. An overview of environmental education characterizes it in several ways: pertains to natural and human environments, teaches problem solving and decision making skills, uses interdisciplinary and multidisciplinary approaches and, focuses on original sources (environments) instead of secondary sources (print materials). A discussion of problems related to the changing world and technology leads to the identification and explanation of seven reasons why education in general is failing, which in turn impacts on environmental education. These include: (1) too little appreciation of the parents' role in the educative process; (2) too little appreciation of early childhood education; (3) inadequate methods of developing the basic skills; (4) inadequate methods of providing for individual differences in children; (5) lack of sufficient cooperation between parents and teachers; (6) separating the process of preparation and achievement, and (7) psychological misunderstanding of children's wants (needs). Finally, specific suggestions for conducting environmental education are presented. (DC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED214764

Adelaide Christian
26 Maple Street
Berrien Springs, MI 49103

5250

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
ADELAIDE CHRISTIAN

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

"BACK TO THE BASICS"

THROUGH ENVIRONMENTAL EDUCATION

By Adelaide Christian

"Halp! Teachers Can't Teach!" screamed Time's cover, startling a multitude of people out of complacency. James J. Aitkin, dean of Stanford University's School of Education, concluded: "For the first time it is conceivable to envision the dismantling of universal public education."[1]

Judith M. Barnet in Phi Delta Kappan, posed two provocative questions: "Is it possible that the way we learn, and teach others to learn, creates, aggravates, and perpetuates the critical social/economic/political malaise currently being experienced world-wide? Could innovative learning help resolve--even avert--that malaise?"[2]

SE 036 450

The answer to the first question is a probable yes. The answer to the second depends upon one's definition of innovative learning. Any learning that fails to take into consideration the ways in which children grow and develop would be counter-productive, even though innovative.

Years ago psychologist and educator, Ellen G. White, revealed to Seventh-day Adventists principles of education that had they incorporated into their educational system would have provided an education unequaled by any educational system in existence today.

These principles which are elaborated upon in her books on education are still on the drawing board. Since the turn of the twentieth century these books have received many translations and printings but they have never been revised. Yet their philosophy of education is still relevant today, even though some of their terminology has long since become obsolete.

White recommended environmental education as the model educational program: "Heaven is a school, its field of study, the universe (environmental education in modern terminology). . . . A branch of this school was established in Eden . . . (and) was to be a model for man throughout all after-time."[3] (Italics supplied.) Noel McInnis, one of the editors of What Makes Education Environmental?, believes as White does that environmental education is fundamental. He said, "We are born to learn to succeed within our environments. How well we learn to succeed within our environments depends upon our access to their 'instructions'."[4] (Emphasis supplied.)

Environmental education which includes all the environments to which mankind is exposed--or as White termed it, "all the habits

of life"--is especially important today when terrific changes are taking place in the planet Earth and in its inhabitants. The earth has become a veritable cesspool of garbage, poisonous wastes, tin cans and plastics. Crime is rampant. Its young, even children of elementary school age, are engaged in illicit sex and in drug abuse. Unless a drastic change takes place in the earth and in its inhabitants, civilization could eventually destroy itself.

A change, however, can never take place until our youth--our future citizens--receive an education that will acquaint them with these problems and motivate them to deal effectively with them. Unfortunately, the present system of education is totally inadequate to deal with these problems and their solutions. This becomes obvious when we examine how school systems are preparing their students to face the future. According to William B. Stapp and Ellen VandeVisse, recognized leaders in the field of environmental education instruction: ". . . when we examine how the school system is preparing students for this inheritance, we find a segmented array of math, social studies, English, science, and physical education throughout the K-12 sequence. Learning is capsuled into subject packages, and disciplines are pursued for their own sake. Very little attention is given to community issues, decision-making, or values clarification. Rarely do schools provide the opportunity for students to interrelate subject matter or to apply their knowledge to alleviating actual community problems. Education is primarily rote learning of predigested subject areas, and the result of this fact learning is well-informed futility."[5]

Environmental education, on the other hand, offers an entirely new approach to education--the problem-solving approach--which necessitates both interdisciplinary and multi-disciplinary instruction and enables students to integrate subjects in the curriculum so they can alleviate actual community problems. It also causes students to pay particular attention to community issues, decision making and values clarification. Interdisciplinary instruction synchronizes the various subjects in the curriculum, enabling students to cut across subject matter boundaries and bring the real world and the classroom closer together. The multi-disciplinary approach, on the other hand, allows students to investigate problems in depth, using a multiplicity of subject areas, whenever necessary. Original sources--the environments--thus become the students' research laboratories rather than secondary sources--textbooks, encyclopedias, etc., which limit what students can learn and which are oftentimes outdated even before they are published. This does not lessen the importance of secondary sources, however. But their main function is to substantiate and/or amplify information already acquired from original sources. Using original sources is in harmony with White's admonition: "Instead of confining their study to that which men have said or written, let students be directed to the sources of truth, tothe vast fields opened for research in nature (science) and revelation (Bible)."[6]

When students have identified a problem important to them, they collect data, suggest alternate solutions and finally test a solution they have agreed upon. Example: What to do with solid waste? (paper, plastics, tin cans, glass, etc.). Instead of discarding this waste how can it be recycled to become useful?

Using original sources places students in a strategic position to become acquainted with their various environments and their needs. Through nature walks, visits to nature centers and zoos, reinforced by films and nature publications, and classroom discussions, they become acquainted with the community's wildlife--its flora and fauna. At the same time they can learn which animals and plants are endangered and how they can be protected.

Through interviews and investigations they become acquainted with the community's resources and industries; its pollution and economic problems; its government, its business and legal organizations, its labor unions; its medical and recreational facilities. This intimate knowledge will help them secure the cooperation and support of community members to improve the living conditions of all their citizens, black, white and ethnic.

Although the focus of environmental education should be on local problems, state, national and international environmental issues should not be neglected. A compelling argument for this is that many of the problems and issues facing local environments are similar to those facing state, national and international environments. Thus focusing on local problems and issues may serve as a springboard for students to obtain a wider knowledge of the world about them.

How do educators and environmentalists in general view environmental education? According to VandeVisse and Stapp, "the goals of environmental education are quite compatible with many of the recent reforms in traditional areas of study . . . the problem-solving approach has been generally accepted by curriculum coordinators

and school administrators. . . . Environmental education provides relevance for existing curricular materials."[7]

Roger Podewell in "Using our Capabilities," said, the problem-solving approach, which environmental education advocates, causes students to sense a need for curricular materials, a need which is "presently obscured by traditional subject matter treatments and divisions."[8] Knowledge thus acquired can be used to develop the beliefs, values and attitudes that VandeVisse and Stapp said, "reflects the necessity of living in harmony with our environments . . . (and which) can foster the skills which enable all citizens of all ages to play an effective role in achieving the goals which derive from such values, beliefs and attitudes."[9] Thus environmental education becomes relevant to existing curricular materials, and is therefore complementary rather than antagonistic to them, as some believe.

Although environmental education has been highly recommended by eminent environmentalists and educators, it has not generally found favor with teachers because in many cases it has placed an added burden upon already crowded curriculum. In order for it to find favor with teachers, it would need to become the curriculum rather than an addition to it. This could be accomplished best if the subjects and skills in the curriculum were developed in the process of investigating and solving problems rather than in isolation, in separate classes, as is now the case.

Why have most administrators and curriculum coordinators been reluctant to sponsor environmental education programs? Alan

McGowan and David Kriebel, in What Makes Education Environmental?, said breaking tradition seems to be the primary difficulty: "An innovation is always faced with difficulties because administration bureauracies favor the status quo." An academic community oriented toward disciplines may also be a reason. Also the fear that an environmental education program may result in an inferior type of education, which it well may, if not properly administrated.[10]

Children of today are living in a changing world, a technological world, vastly different from the simple life of their ancestors. Because educators in general have relied too much on secondary sources--subjects in the school's curriculum--for their knowledge, which prevents them from keeping in touch with what is happening in the world today, they have been unable to keep pace with this change. Consequently, children are confused, bewildered, and out of touch with reality.

Psychologist Dorothy H. Cohen in Childhood Education, reported that experienced elementary teachers at all levels found disturbing differences in today's children. She attributed it to TV watching, which she feels is causing children to lose their strength to function. She noted their inability to work toward goals, their short memory spans, their lack of patience and their desire for instant gratification. She warned: "We are the slaves of technology, not the masters of our environment through technology. . . . Parents lament this condition but accept it as the price they have to pay for material comforts. Busy with their own problems of high prices, inflation, racism, etc., they have not really looked at its impact on children."[11] "Children," she emphasized, "cannot grow into full maturity unless they are tuned

into a world of work and responsibility which is real to them."[12]

In addition to creating an unrealistic world for children with little work and a corresponding lack of responsibility, technology has made many changes in the earth itself. It has in many respects improved living conditions for all--men, women, and children--but because of man's inordinate desire for high technology the natural laws that control the ecosystem have largely been ignored. This has resulted in the world becoming a relatively unsafe place in which to live.

Does this mean the world should abandon technology? Not at all. Bill Marks in Michigan Natural Resources, states that "waste is merely a by-product of our standard of living. It cannot be kept from the fabric of our society, and therefore, must be recognized and properly managed."[13]

Students must come to accept as their responsibility the work of improving the quality of life on earth. Unless an all-out effort is made to find ways to solve the world's pollution problems, conditions will continue to worsen rather than improve. What better way for children to become alert to the world's problems and want to seek solutions than to become involved in an environmental education program in the schools?

There are many advocates of environmental education who believe the answer to the world's pollution problems lies in its schools. James J. Hammond, president of Fitchburg State College, as well as other well-known environmentalists are among them. Speaking of the schools' involvement, Hammond said, "Their contributions can be critical because very person must be involved, and childhood is

the time to make the lessons clear, convincing, and lasting." In his opinion, schools need a well-balanced environmental education program that will permeate the entire K-12 experience. He also believes that governments, great corporations, political parties, churches and labor unions should cooperate with schools in curbing the abuses of the environment.[14]

When studying the problems of pollution, children will discover that the earth has a fixed supply of air, land, and water, but that its natural disposal systems which are adequate in a balanced ecosystem cannot recycle, disperse or absorb the enormous amount of waste material which technology generates. They will discover that the atmosphere which people breathe, the water they drink, and the soils that grow their food that were once maintained by the enormous species that previously inhabited the earth is no longer true. The first law of life, which, according to Hammond, is that all living things are in interaction, interrelated, and interdependent, has been ignored. "A society which continues to flout these laws," he said, "will inevitably commit ecocide--the death of the environment."[15]

We are the only species that can change our environments, and what is more critical, according to McInnis, "We are the only species which can knowingly participate in the determination of its own possibilities. . . . When we make a change in nature we set the conditions for change in our nature as well. . . . Should our environments cease to provide the conditions (i.e., instructions) to which we have become peculiarly adapted, we will be less possible. This fact should never be forgotten, because our ability to change

nature includes the ability to alter our environments more rapidly than our genetic adaptability can accommodate us to them. In other words, we are capable of making a change in nature to which we cannot adapt. When we make environments impossible to live in, it is we who ultimately become impossible."[16] (Emphasis supplied.)

To help children become aware of the immutability of natural law and to become scientifically and technologically literate, it would be well for them to have a garden. As they prepare the soil, plant seeds and watch them grow, they will discover that different varieties require different soils and cultivation. They will discover also that compliance with the laws governing each is the condition of their success. "We can have no better lesson book," White said, "than nature. . . . The same power that upholds nature is working also in man. . . . The unity of man with nature and with God, the universal dominion of law, the result of transgression cannot fail of impressing the mind and molding the character."[17]

As children work in the garden they discover that "instant gratification," a figment of television advertising, is contrary to natural law and can result only in confusion. They discover that fruits and vegetables do not originate in a supermarket. As they study farming, compare its various kinds and methods, they also discover that to obtain milk means more than going to their doorstep or to the supermarket.

There are few schools even in ghetto areas, where space for a garden of some size could not be made available--an empty lot, someone's back yard or even front yard, if necessary; part of the

school's playground, or the city's recreational areas. Some of the children could be encouraged to have gardens in their own homes if they had available space. And, or course, some plants could be grown indoors in the schoolroom. Should schools have no space for a garden--which is unlikely--there surely would be an open space somewhere in the neighborhood that contained a variety of insects and plants (weeds), even though not available or suitable for gardening, teachers could use to develop an understanding of nature's laws. Having pets in the schoolroom also would help to develop this understanding.

My many years of teaching experience have convinced me that there are at least seven principal reasons why present-day education has not and cannot keep pace with changing conditions in the world today; conditions that also can prevent environmental education from becoming a viable alternative. They are: (1) Too little appreciation of the parents' role in the educative process. (2) Too little appreciation of early childhood education. (3) Inadequate methods of developing the basic skills. (4) Inadequate methods of providing for individual differences in children. (5) Lack of sufficient cooperation between parents and teachers. (6) Separating the process of preparation and achievement, and (7) Psychological misunderstanding of children's wants (needs).

1. The Parents' Role in the Educative Process

White has given Seventh-day Adventists sufficient counsel concerning the early education of children: "It is in the home that the

education of the child is to begin. Here is his first school. Here, with his parents as instructors, he is to learn the lessons that are to guide him throughout life--lessons of respect, obedience, reverence, self-control. The educational influences of the home are a decided power for good or evil."[18] (Emphasis underlined.)

"Too much importance cannot be placed on the early training of children. The lessons that the child learns during the first seven years of life have more to do with forming his character than all that he learns in future years."[19]

White continued: "Children should not be long confined within doors, nor should they be required to apply themselves to study until a good foundation has been laid for physical development. For the first eight or ten years of a child's life the field or garden is the best schoolroom, the mother the best teacher, nature the best lesson book. Even when the child is old enough to attend school, his health should be regarded as of greater importance than a knowledge of books. He should be surrounded with the conditions most favorable to both physical and mental growth."[20] "Infancy extends to the age of six or seven years. . . . Up to this period . . . parents, especially mothers, should be the only teachers of such infant minds. They should not educate from books."[21]

Evidently the child's health and maturity, and the nature of the school he will attend rather than his age--due to individual differences--no doubt--should be the criteria, even though it would be better, perhaps, in most cases to keep the child home until eight or ten if the home conditions were such as to warrant this.

2. Too Little Appreciation of Early Childhood Education

Most educational institutions put their greatest emphasis on the higher levels of education--beyond the elementary grades. This is misplaced emphasis according to White: "the lessons learned, the habits formed during the years of infancy and childhood have more to do with the formation of character and the direction of life than have all the instruction and training of after years. . . . The habits then established have more influence than any natural endowment, in making men either giants or dwarfs in intellect; for the very best talents may, through wrong habits, become warped and enfeebled. . . . (Although habits formed in childhood) may be modified by severe training in afterlife, they are seldom changed."[22]

"Before the student there is opened a path of continual progress. . . . He will advance as fast and as far as possible in every branch of true knowledge,"[23] if permitted to do so. With God there is no such thing as pre-school, elementary, secondary, and White never recognized any such divisions. Education is an uninterrupted process. Each stage in the developmental process should and can be 'higher education', which is the only way to insure optimum development at each stage. It is not the subject matter that differentiates 'higher education'; it is the depth of understanding of which each student is capable and can achieve, at any level. (Emphasis supplied.)

3. Inadequate Methods of Developing the Basic Skills

When children ask, "What good is math?", "Why learn parts of speech?", "Why learn to read?", teachers should see a red signal.

Children need to be confronted with situations in which they can discover why basic skills are important. Instead, these skills in most cases are taught in isolation in separate classes, or as Stapp and VandeVisse suggest, "pursued for their own sake."[24]

A research project in the Fairburn Elementary School, Canada, asked why a significant number of children had learned to read before coming to school. The researchers wanted to find out if the same strategies used in the home would be as effective in a classroom. They discovered that both learning to read and learning to speak had traits in common which were characteristic of "natural reading," that is, reading which developed without formal instruction.

Anne D. Forester, a doctoral candidate in reading at the University of British Columbia reported: "Given the opportunity to evolve naturally, reading is learned not as a set of rules, but as expressive, meaningful language on the basis of modeling, where a competent reader demonstrates fluent reading. It is a process which like that (in the home) when the child learns to speak by having parents model fluent language where the same familiar words and actions occur again and again."[25] (Underlining supplied.)

"Does this sound too simplistic or too easy to be of value to teachers?" Forester asks. "Nevertheless it characterizes how natural readers learn."[26] If virtually all children can be trusted to speak their own language without formal instruction--listening to models, why can't they be trusted to learn to read by listening to models as well?

Supposing most children could learn to read by this method

who could guarantee that all of them would learn to read in the first year, the second year, or even in the third year, for that matter, due to individual differences? A nongraded classroom could solve this problem since children would remain in the same group with the same teacher until they had learned to read. During this time they would in all probability have developed an understanding of the other basic skills as well.

4. Inadequate Methods of Providing For Individual Instruction

There has been a great deal of lip-service regarding individual instruction in the classroom but few if any of the programs implemented so far has met with any substantial success. Small classes do not seem to be the answer.

Children need an education that will insure the harmonious development of their physical, mental and spiritual powers--the holistic method. This can be achieved only if each child is allowed to progress at his own rate and in his own way. An environmental education program can make this possible.

Partially paraphrasing Don Dinkmeyer and Rudolf Dreikurs, authors of Encouraging Children to Learn: The child's first experience in the family is the group. Here he lives, grows, develops, and adjusts in the group. Here he begins his specific role within the family and develops skills in impersonal relationships. As he moves toward democracy and away from autocracy, the child's peers become increasingly important to him. For consistency's sake and for a continuous educational experience the child's first introduction to the classroom should likewise be the group. It is important for

teachers to realize that individual instruction is contingent upon adequate group instruction, since it is in group discussion that children broaden their field of knowledge and acquire skills and values so necessary for success in school and in life. Here, too, they learn to work independently, both individually and in groups, thus giving the teacher plenty of time for individual instruction, when needed.[27]

5. Lack of Sufficient Cooperation Between Parents and Teachers

"The teacher in the home and the teacher in the school should have a sympathetic understanding of one another's work. . . . The parents' intimate knowledge both of the character of the children and of their physical peculiarities or infirmities, if imparted to the teacher, would be of assistance to him. It is to be regretted that so many fail of realizing this."[28]

Most schools arrange for conferences with parents at stated periods throughout the school year. While this is good it is not enough. Unless a teacher has the opportunity to observe the child in his own home she cannot and does not receive a true picture of his needs.

6. Separating the Process of Preparation and Achievement

"Life is too generally regarded as made up of distinct periods, the period of learning and the period of doing--of preparation and of achievement. In preparation for a life of service the youth are sent to school to acquire knowledge by the study of books. Cut off from the responsibilities of every-day life, they become absorbed in study,

and often lose sight of its purpose. . . . Upon graduation, thousands find themselves out of touch with life. They have so long dealt with the abstract and theoretical that when the whole being must be roused to meet the sharp contests of real life, they are unprepared. . . . After repeated disappointments, in despair even of earning an honest livelihood, many drift into questionable or criminal practices."[29]

7. Psychological Misunderstanding of Children's Wants

Since students should be given the opportunity to advance as far and as fast as possible in every branch of true knowledge, it is important that the home and school set the stage for its accomplishment. Their selection of reading material for the beginning reader and their method of teaching reading is of utmost importance. Many children have been "turned off" (developed a dislike for reading) by the school's over emphasis on vocabulary and phonics, and their continued use of the basic readers.

If, as Hans G. Furth, author of Piaget for Teacher, maintains, "A child of elementary school age is capable of operative intelligent thinking years ahead of his spoken language . . . and light years ahead of what he can read or write,"[30] what place should basic readers with their limited interest value and controlled vocabulary occupy? Clearly the child's environments could better serve his needs.

Basic readers do have their place, however, and should be available for those who want to read them. In fact, there should be many books available on many subjects and grade levels, starting with preprimers. It will be found, however, that most children beyond the first grade will prefer to read books other than basic

readers because of their greater interest. Since there is on the market today an abundance of outstanding books on almost any subject area and grade level, basic books are not indispensable; though perhaps useful, in some cases.

Furth continues: "With children at the threshold of operational intelligence, our schools are throwing away the last chance of plugging in where the natural strength of any human child lies. And they do this for the sake of imparting a specialized skill which in the early grade levels has very little to do with thinking. While the child is anxious to grow intellectually, society decrees that reading is going to be the criterion of scholastic success. The results of this psychological misunderstanding are seen in the thousands and tens of thousands of scholastic failures in school systems across the country."[31] According to White, "It is the law of the mind that it gradually adapts itself to the subject upon which it is trained to dwell. . . . If never required to grapple with difficult problems, it will after a time almost lose the power of growth."[32]

An important factor all elementary teachers should take into consideration: The basic principles underlying practically every subject in the curriculum--elementary or secondary--can be introduced to children at a very young age; not by memorizing rules, but by demonstrations, experiments and discussions. Newton's three laws of motion is a case in point. Parts of speech which many older children find difficult to grasp can be simplified if in the early years children play games with words, classifying them according to their use--words that tell what kind or how many; words that tell

what people do or did, etc. (These are not taught as parts of speech at this juncture although there may be some children who will learn them.) Even though children may be too immature to realize their full significance, an understanding of these principals lays the basis for future insights that will prove of incalcuable value to them in later years. Early acquaintance with maps, globes, and the calendar are equally as important.

The most challenging classroom in my opinion, would be a nongraded-multi-age-family-style classroom consisting of students of various nationalities and races, also achievement levels; ranging in age from six or seven to sixteen years or older, including high school dropouts, and perhaps even some adults, also a few handicapped. This would solve the reading problem for the beginning readers since the older students could serve as models, thus taking the place of parent-models. Students could also serve as teacher-aides in developing the other basic skills.

Most teachers who desire to participate in an environmental education program would no doubt prefer that the multiage group consist of children comprising fewer grade levels--grades one to three; four to six; seven to eight, maybe nine. This grouping should be optional of course, although I would prefer the wider age range, not only because of its greater challenge, but because it could reach a wider segment of the population. The family-style classroom generates a feeling of fellowship which in turn creates an atmosphere conducive to developing correct values, beliefs and attitudes. For non-English speaking students it offers an ideal environment in which to learn English, thus eliminating less efficient, expensive multi-lingual classes.

A multiage, family-style, nongraded classroom should be treated as a single unit under the direction of one teacher, although parent volunteers would be welcomed. The children in most cases would stay with the same teacher until ready to move to a higher level of learning. Experienced teachers will find they can handle from 30 to 40 students without too much difficulty under this arrangement.

The first few weeks, however, will be more difficult, and require a great deal of patience and endurance on the part of both teacher and students. Once the students and teachers learn to appreciate this different kind of education, discipline problems will be reduced to a minimum. Teachers as a general rule will need both a workshop and an in-service, follow-up program before they become comfortable with this method of teaching. And, eventually, when they find out how challenging this program can be, they will never be satisfied with any other educational program.

Although environmental education is the ideal toward which to strive, it does not follow that all teachers would need to engage in such a program to be successful. Modified versions might seem to be more acceptable to some. The goals and principles with which to achieve them, however, should not vary.

Evaluating Student Progress

"In God's plan there is no place for selfish rivalry. Those who measure themselves by themselves, and compare themselves among themselves, are not wise."[33] Since letter grades encourage selfish rivalry and unfair competition it is best not to use them as a means of evaluating student progress in an environmental education program.

Grades are too subjective and too subject to misinterpretation.

How well students have achieved in the various areas should be determined not by how well they do on tests but on how well they perform in meaningful situations; in writing a letter, in composing a story or poem, conducting an investigation, an experiment. How well students organize their thoughts and put them into suitable language. How well they comprehend what they read, how well they spell, how legibly they write. These criteria will measure sufficiently how well students are learning. Standardized tests, do, however, have some value and some teachers may wish to use them also.

McInnis, referring to the financial future of public school education: "Our economy can no longer afford the existing model of education. There is and probably will continue to be, less and less money for education, both from federal and state governments, and from local sources like bond issues and referendums. Yet facilities and maintenance budgets and teachers' salaries continue to rise."[34]

An environmental education program as proposed by this paper is a work-study-program that combines work experiences with academic excellence. For this reason it could substantially reduce this cost. Students could become not only economically self-sufficient and outstanding in achievement but largely able to manage cooperatively the school's expenses. Some of their income will derive from recycling solid wastes and collecting returnables; also what their gardens can produce. Creative students will find there is no end to work opportunities for those who take their work seriously and receive community cooperation and support.

A program of this sort will go a long way toward reducing crime among young people. The methods used in developing basic skills could also be used to help solve the literacy problem in our prisons.

McInnis, in summing up the importance of environmental education: "Environment has become front page news, and is likely to remain front page news indefinitely. As environmental problems and issues permeate our society, the need for serious attention to the environment in the curriculum becomes increasingly obvious. . . . Our present way of looking at the world cannot lead us to the solution of many of our major problems. . . . Environmental education is uniquely qualified to meet this need, because it refers us to the most fundamental source of systematic insight that our planet Earth has to offer: ecosystems."[35]

FOOTNOTES

[1]Time, June 16, 1980, pp. 54-60.

[2]Judith M. Barnet, "Learning: In Crisis the World Over," Phi Delta Kappan, October 1979, p. 112.

[3]Ellen G. White, Testimonies, 9 vols. (Mountain View, California: Pacific Press Publishing Association, 1948), 6:126.

[4]Noel McInnis, "What Makes Education Environmental," What Makes Education Environmental? (Washington, D.C.: Data Courier, Inc., and Environmental Educators, Inc., 1975), p. 23.

[5]William B. Stapp and Ellen VandeVisse, "Overview," What Makes Education Environmental?, p. xiv.

[6]Ellen G. White, Education (Mountain View, California: Pacific Press Publishing Association, 1942), p. 17.

[7]Ellen VandeVisse and William B. Stapp, "Developing a K-12 Environmental Education Program," What Makes Education Environmental?, p. 93.

[8]Roger Podewell, "Using Our Capabilities," What Makes Education Environmental?, p. 30.

[9]Stapp and VandeVisse, "Overview," p. xv.

[10]Alan McGowan and David Kriebel, "Higher Education Environmental Problems," What Makes Education Environmental?, p. 121.

[11]Dorothy H. Cohen, "Children of Technology: Image or the Real Thing?" Childhood Education (March 1972), pp. 298-302.

[12]Dorothy H. Cohen, The Learning Child (New York, New York: Pantheon Books, a division of Random House, 1972), p. 32.

[13]Bill Marks, "Managing Hazardous Wastes," Michigan Natural Resources (November/December 1979), p. 19.

[14]James J. Hammond, president of Fitchburg State College, Fitchburg, Massachusetts, "A Challenge for Man and His Environment," Man/Society/Technology (September/October 1972), p. 29.

[15]Ibid., p. 32.

[16]McInnis, "What Makes Education Environmental," pp. 22-23.

[17]Ellen G. White, Child Guidance (Nashville, Tennessee: Southern Publishing Association, 1954, pp. 55-56.

[18]Ellen G. White, Counsels to Parents, Teachers, and Students (Mountain View, California: Pacific Press Publishing Association, 1943), p. 107.

[19]White, Child Guidance, p. 193.

[20]White, Education, p. 208.

[21]White, Child Guidance, p. 300.

[22]Ibid., pp. 199, 200.

[23]White, Education, p. 18.

[24]Stapp and VandeVisse, "Overview," p. xiv.

[25]Anne D. Forester, "What Teachers Can Learn About 'Natural Readers,'" Education Digest (January 1978), pp. 57-59.

[26]Ibid.

[27]Don Dinkmeyer and Rudolf Dreikurs, Encouraging Children to Learn: The Encouragement Process (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963), pp. 103-115.

[28]White, Child Guidance, pp. 318, 321.

[29]White, Education, p. 265.

[30]Hans G. Furth, Piaget for Teachers (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), p. 145.

[31]Ibid., p. 6.

[32]Ellen G. White, Patriarchs and Prophets (Mountain View, California: Pacific Press Publishing Association, 1948), p. 596.

[33]White, Education, p. 226.

[34]McInnis, "Opportunities for Change," What Makes Education Environmental?, p. 49.

[35]Ibid., pp. 50-51.